AGENDA

RIO DELL CITY COUNCIL

SPECIAL MEETING

TUESDAY, MAY 13, 2014 - 4:00 P.M.

CITY COUNCIL CHAMBERS

675 WILDWOOD AVENUE

***WELCOME** . . . By your presence in the City Council Chambers, you are participating in the process of representative government. Copies of this agenda, staff reports and other material available to the City Council are available at the City Clerk's office in City Hall, 675 Wildwood Avenue. Your City Government welcomes your interest and hopes you will attend and participate in Rio Dell City Council meetings often.*

A. CALL TO ORDER

B. ROLL CALL

C. PLEDGE OF ALLEGIANCE

D. PUBLIC COMMENTS

This time is for persons who wish to address the Council on any matter not on this agenda and over which the Council has jurisdiction. As such, a dialogue with the Council or staff is not intended. Items requiring Council action not listed on this agenda may be placed on the next regular agenda for consideration if the Council directs, unless a finding is made by at least 2/3rds of the Council that the item came up after the agenda was posted and is of an urgency nature requiring immediate action. Please limit comments to a maximum of 3 minutes.

Members of the Public are encouraged to attend and shall have an opportunity to directly address the City Council concerning any item described in this special meeting agenda before or during consideration of that item.

E. SPECIAL MEETING MATTERS

4:00 P.M.

2014/0514.01 – **CLOSED SESSION – PUBLIC EMPLOYEE APPOINTMENT**
Title: City Manager – Review of Candidates with Paul Kimura, Avery Associates
(Pursuant to Gov't Code Section 54957)

City of Rio Dell

Water System Asset Management Plan and Preliminary Capital Improvement Plan

May 2014

Table of contents

Table index

Appendices

1. Introduction and CIP Overview

This Capital Improvement Plan (CIP) consists of documents that identify current and future needs for the replacement of water system components for the City of Rio Dell. The included Asset Management Plan (AMP) identifies the remaining useful life of the individual system components and the estimated replacement costs at the end of their useful lives. The AMP is the supporting documentation needed for the City to start more accurately budgeting for systematic capital replacements. Together, these documents will assist the City in planning for necessary future component replacements and to determine the amount of revenue needed. Proactive maintenance of a public water system is vital to providing a community with safe and reliable access to drinking water and protecting public health.

This document is comprised of seven main sections:

- Background: An overview of the CIP development and purpose
- Existing Water Facilities: Presents a background on the City's water system.
- Need for Improvements: Presents on-going maintenance issues that need to be addressed to keep the system in good working order.
- AMP: Presents a summary of the AMP developed for the City's water treatment plant, distribution system, and storage assets with estimated replacement schedules and costs.
- Preliminary Capital Improvement Plan: Presents the analysis of the AMP, which indicates the amount of funds the City should be setting aside for Capital Replacement and presents recommendations by City staff for high priority components to be replaced.
- Funding Options: Discussion of possible funding scenarios with information on necessary water rate increases to fund improvements and impacts to rate payers.
- Summary: Presents the final budget information.

2. Background

In an effort to continue documenting the value of the City of Rio Dell's existing infrastructure and begin planning for future replacements, the City has requested that GHD develop an updated CIP and AMP for the City's water system, similar to the CIP completed by the City and GHD in 2010. In recent years, the City has invested considerably in its water system, most recently completing a Water Infrastructure Improvement Project in 2006. Following the format laid out by the EPA, an AMP was completed to document existing water system infrastructure and includes recent upgrades. The AMP and CIP cover an inventory of the water system components including treatment, storage, and distribution system assets. GHD worked closely with City staff to identify date of installation, condition, service history, useful life, remaining useful life, importance, redundancy, priority, and estimated replacement costs (in 2014 dollars) for all water system assets.

3. Existing Water Facilities

The City of Rio Dell's water system infrastructure including valves, fire hydrants, storage tanks, water treatment plant, distribution system piping, and water service area boundary is shown in Figure 1, in Appendix A. Figure 2 in Appendix A shows the 2006 water pipeline project in more detail.

The City's water supply needs were originally met by individual wells and springs serving clusters of homes and a private water company that served the broader area. Much of the current water system was developed around World War II and later. Eventually, the City developed a well system which was supplied from three wells located north of the City across the Eel River. The production from the City's well system began declining significantly in the fall of 2000, and no increase in water level in the wells was observed even after winter rains came. Attempts to rehabilitate one of the three wells resulted in its complete collapse and failure. An additional well was drilled, and it produced only a minimal amount of water.

It appeared that a water shortage emergency was at hand, and the City of Rio Dell declared a local disaster that was followed by a disaster declaration by the Governor. The Office of Emergency Services, the Department of Health Services and the City of Rio Dell then undertook the funding of the Rio Dell Emergency Interim Water Supply System that was constructed over the summer of 2001. The Emergency Interim Water Supply System provided a capacity of 500,000 gallons per day which was enough to meet then current needs based on implementing moderate conservation measures.

In 2006, the City completed an upgrade to the interim water system which included a permanent water intake on the Eel River consisting of an infiltration gallery; wet well; intake pump; force main; improvements to the chlorination system; additional filtration units; miscellaneous pipes, valves and appurtances; and site paving. The current system with improvements has a filtration capacity of 1,000,000 gallons per day.

Much of the early water distribution system was constructed out of available pipe and was installed without regard to an appropriate long-term design standard. Approximately 28,000 feet of new 6", 8" and 10" water mains were installed in 2006, funded through a grant from the California Department of Water Resources (DWR). There have been several other minor projects in recent years to continue the process of replacing sections of the distribution system. There are still small pipes, 2" to 6", that are 50 years or older and should be replaced.

The City of Rio Dell maintains four water storage tanks. The Painter Street Tank is a 250,000-gallon welded steel water tank that supplies the main pressure zone. The Douglas Tank site has a new 500,000 gallon bolted steel tank and an existing 250,000 gallon redwood tank also supplying the main pressure zone. The Dinsmore Tank, a 100,000-gallon bolted steel water tank installed in 2007, supplies a smaller pressure zone and is filled from the Douglas Tank.

4. Need for Improvements

Proposed improvement projects are presented and described in this section under the heading that best describes the need for the project element including health and safety, system operation and maintenance, and capacity for growth. The project elements discussed under each heading are presented in their preliminary priority order.

The water treatment plant improvements are generally intended to enhance the reliability of the water treatment plant or meet upcoming regulations and are not intended to increase plant capacity. The City currently produces approximately 90 million gallons of drinking water per year. Average daily use is estimated at 0.267 million gallons per day (MGD), while peak daily use is estimated at approximately 0.474 MGD.

4.1 Replacement of Transmission and Distribution Pipelines and Appurtenances

The City of Rio Dell's water transmission and distribution system originated from the consolidation of private systems and construction of new sections over time. The resulting system serves incremental new developments rather than serving the City as a whole. There remains considerable steel piping in deteriorating condition within the system that is smaller than 4" in diameter and is inadequate to provide fire protection if needed. The distribution system in Dinsmore on Monument Road and Old Ranch Road is in particularly poor condition and needs replacement. All old steel pipe smaller than 4" in diameter should be replaced to comply with current California Waterworks Standards. Additionally, cleanout and blow off assemblies need to be added to keep the piping network clean. Valves and hydrants that do not operate properly need to be replaced. Older pipes also tend to have higher water leak rates; therefore, replacing these pipes would provide the benefit of improving water conservation.

4.2 Clarifier/Flocculator

The existing flocculator unit does not adequately treat the high wintertime turbidity levels and needs replacement. During winter storm events, turbidity levels rise to a level that the existing flocculator cannot treat, and the water intake system has to be turned off until turbidity level decrease and treatment can resume. The City needs a new 1000 gpm pre-treatment unit to handle winter turbidity levels.

4.3 Booster Pump Station to Dinsmore

The City of Rio Dell operates a booster pump station at the Douglas Tank site which boosts pressure from the City's primary pressure zone to a second pressure zone on the Dinsmore Plateau. The booster pump station plumbing is in need of replacement. The suction piping necks down from 8" to 2", while the discharge piping is also 2". The piping was done by a previous developer and needs to be modified to provide adequate flows. Moreover, the pumps appear to have diminished in capacity and are in need of replacement. This booster pump station will be replaced when the Dinsmore Plateau is developed and paid for by the development. Until development occurs and the pump station is replaced, the City will maintain the existing station.

4.4 Dinsmore Tank Solar Powered Telemetry System

The existing wiring for the Dinsmore Tank is buried directly in ground and is corroded, causing malfunction. The City needs to replace the system with a solar powered telemetry system to maintain continuous operation of the Dinsmore Tank.

4.5 Painter Street Tank Rehabilitation

The City of Rio Dell's existing Painter Street Tank is in need of repair or replacement. The existing paint job on the tank has deteriorated, and both the interior and exterior of the tank need to be repainted. There are also rusty areas that need spot repair. The top of the tank has several holes

remaining from previous plumbing that need to be patched. It appears that replacement of the tank may be more economical and provide the City with a better long-term solution than rehabilitating the existing Painter Street Tank. Valving at the tank also needs to be replaced.

4.6 Auxiliary Power Generator

Currently, there is no auxiliary power source dedicated to the source supply feed pumps at the City's infiltration gallery (source water supply) on the Eel River. The City needs a generator and automatic transfer switch for these pumps in order to be able to continue to provide a safe source of drinking water to City residents in the event of an extended power outage.

4.7 Douglas Tank Replacement

The City's Douglas Tank #1, a 250,000 gallon redwood tank, has several leaks that are getting worse with time. The cost of lining the tank to provide additional useful life is an option; however, the expense would be high, and replacement would be a better long term solution.

4.8 Additional Plant Operations Building

There are currently only two enclosed buildings serving the City of Rio Dell's water treatment plant, which are used to capacity. The City needs a new building to serve as an administrative work space and equipment storage area. The building would provide staff with a functional office space to prepare and store plant documents, while remaining on the treatment plant site to perform any necessary operations activities. The storage area would be a separate section of the building and would free up space in the laboratory to be able to more safely use the laboratory for its intended purpose. Equipment and file storage is especially important on the North Coast where prolonged rainfall can damage equipment and ruin treatment plant records.

4.9 Re-Coating of Existing Water Treatment Filters

The existing water treatment plant has many pieces of process equipment that are corroding due to exposure to the environment and routine operation. If left unchecked, the rust and corrosion could lead to decay of the underlying steel and eventual need for extensive repairs or replacement.

5. Asset Management Plan

A separate Asset Management Plan was developed for each of the three main areas of the City's water system; water treatment, water storage and distribution system. The AMP includes a description of each asset, the year it was installed, expected useful life and remaining useful life, condition, service history, importance to the treatment system, redundancy, priority for addressing, and total cost for replacement in 2014 dollars. This information is useful to the City in understanding the value of the infrastructure the City has invested in and puts in perspective the importance of regular maintenance to protect the City's assets. The remaining useful life of the water system components ranges from 1 to 97 years with an average remaining useful life of 24 years. A summary of each system and the value of investment is discussed below.

5.1 Water Treatment

The Rio Dell Water Treatment AMP is included as Table B.1 in Appendix B. The water treatment plant includes the raw water intake, coagulation/flocculation system, filtration, backwash system,

SCADA system, and miscellaneous site improvements. The total replacement capital cost for the water treatment system in 2014 dollars is $3,012,958 excluding any permitting, environmental, design, or outside labor costs.

5.2 Water Storage

The Rio Dell Water Storage Tank AMP is included as Table B.2 in Appendix B. The Water Storage AMP covers the four City storage tanks, the Booster pump station serving the Dinsmore Tank, flow meters, and miscellaneous site improvements. The total replacement capital cost for the City's water storage system is $1,369,314, excluding any permitting, environmental, design, or outside labor costs.

5.3 Distribution System

The Rio Dell Water Distribution System AMP is included as Table B.3 in Appendix B. The distribution system includes almost 20 miles of pipes running beneath the City streets, in addition to valves, fire hydrants and water meters. The total replacement capital cost for the City's water distribution system is $9,068,610, excluding any permitting, environmental, design, or outside labor costs.

Table 1 – Summary of Water System Replacement Value

Summary of Water System Replacement Value	
Water Treatment	$3,012,958
Water Storage	$1,369,314
Distribution System	$9,068,610
TOTAL	$13,450,882

6. Capital Improvement Plan

Several of the system components have exceeded their expected service lives, and planning for the replacement of these components should have already started. It is also clear that the cost of replacing or saving for the replacement of everything that currently should be addressed would be a severe hardship on the City's water customers if borne all at once. Proactive asset management practice suggests implementing a comprehensive, multi-year capital improvement plan as part of the City's annual water budget process.

A preliminary Capital Improvement Plan was developed from each of the AMPs. The CIP was developed assuming that the useful life of components could be extended with good maintenance, and the collection of funds for assets with remaining useful lives greater than 30 years was delayed by 10 years to better disburse the bulk of the repayment costs. Table B.4 in Appendix B shows the CIP with the useful life of system components and the delay in collection of funds for items that have long remaining useful life. This table assumes the City completes the projects in Table 3 below in the next five years and begins addressing other components after two years.

The analysis assumes an interest rate of 2.12% (an average over the past 10 years) in the City's LAIF account and an inflation rate on capital goods of 1.51% (May 2014 Rate).

City staff worked closely with GHD to identify the City's top priority projects. The components that are agreed to be most urgently in need of repair or replacement at the present time (May 2014) are listed in Table 2.

Table 2 – Summary of Priority Water System Projects

Priority Project	Capital Replacement Cost (2014 dollars)
Infiltration Gallery Extension	$1,000,000
Replacement of Distribution Piping	$420,000
Replacement Clarifier	$350,000
Painter Street Tank Replacement	$300,000
Backup Generator for Infiltration Gallery	$40,000
Dinsmore Tank Solar Powered Telemetry	$29,000
SCADA System	$6,000
TOTAL	$2,145,000

The above costs represent our opinion of probable construction costs in 2014 dollars.

7. Funding Options

The City needs to consider how it will pay to replace its aging water infrastructure and save for future replacement of newly installed components before increased wear and tear and deferred maintenance create a situation where the City is unable to satisfactorily fulfill its dedication to providing clean, safe, and reliable drinking water supply to its citizenry. The recommended approach is to create a plan for systematic component replacement based on the needs outlined in the three AMPs, working closely with City staff and City Engineer recommendations.

Development of a specific plan was outside the scope of this preliminary CIP effort. However, a simplified 5-year CIP was developed to provide the City a starting place for collecting additional funds for capital replacement. The 5-year CIP includes completion of the majority of the projects listed in Table 2.

Table 3 – Five Year Capital Expenditures to Complete Priority Projects

Priority Project	2014 Capital Cost	Year 1	Year 2	Year 3	Year 4	Year 5
Infiltration Gallery Extension	$1,000,000		$ 180,000	$ 180,000	$ 330,000	$ 310,000
2" or smaller water line (Old) (25%)	$ 420,000		$ 100,000	$ 100,000	$ 100,000	$ 120,000
Replacement Clarifier	$ 350,000	$ 350,000				
Painter Street Welded Steel Tank Replacement	$ 300,000		$ 150,000	$ 150,000		
Backup Generator for Infiltration Gallery	$ 40,000	$ 40,000				
Dinsmore Tank Solar Powered Telemetry	$ 29,000	$ 29,000				
SCADA System		$ 6,000				
Total	$ 2,145,000	$ 425,000	$ 430,000	$ 430,000	$ 430,000	$ 430,000
Average Monthly Cost per water connection (1,430 connections)		$ 24.77	$ 25.06	$ 25.06	$ 25.06	$ 25.06

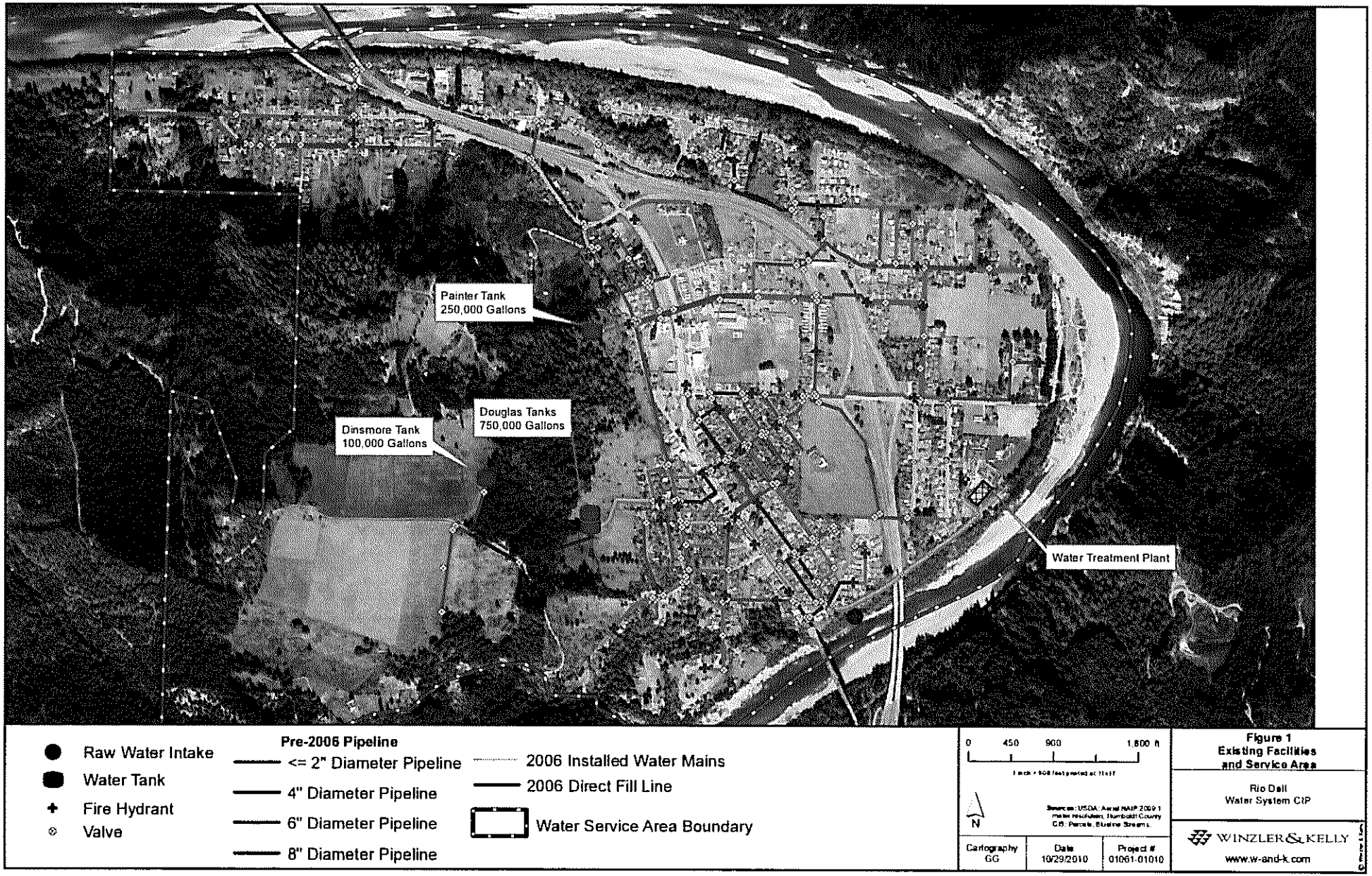
If the City were to collect an additional $430,000 a year for the Capital Improvement Program, starting in Year 2017, that amount would be approximately half of the needed funds to fully replace the system components as they wear our under the assumption of useful life.

8. Summary

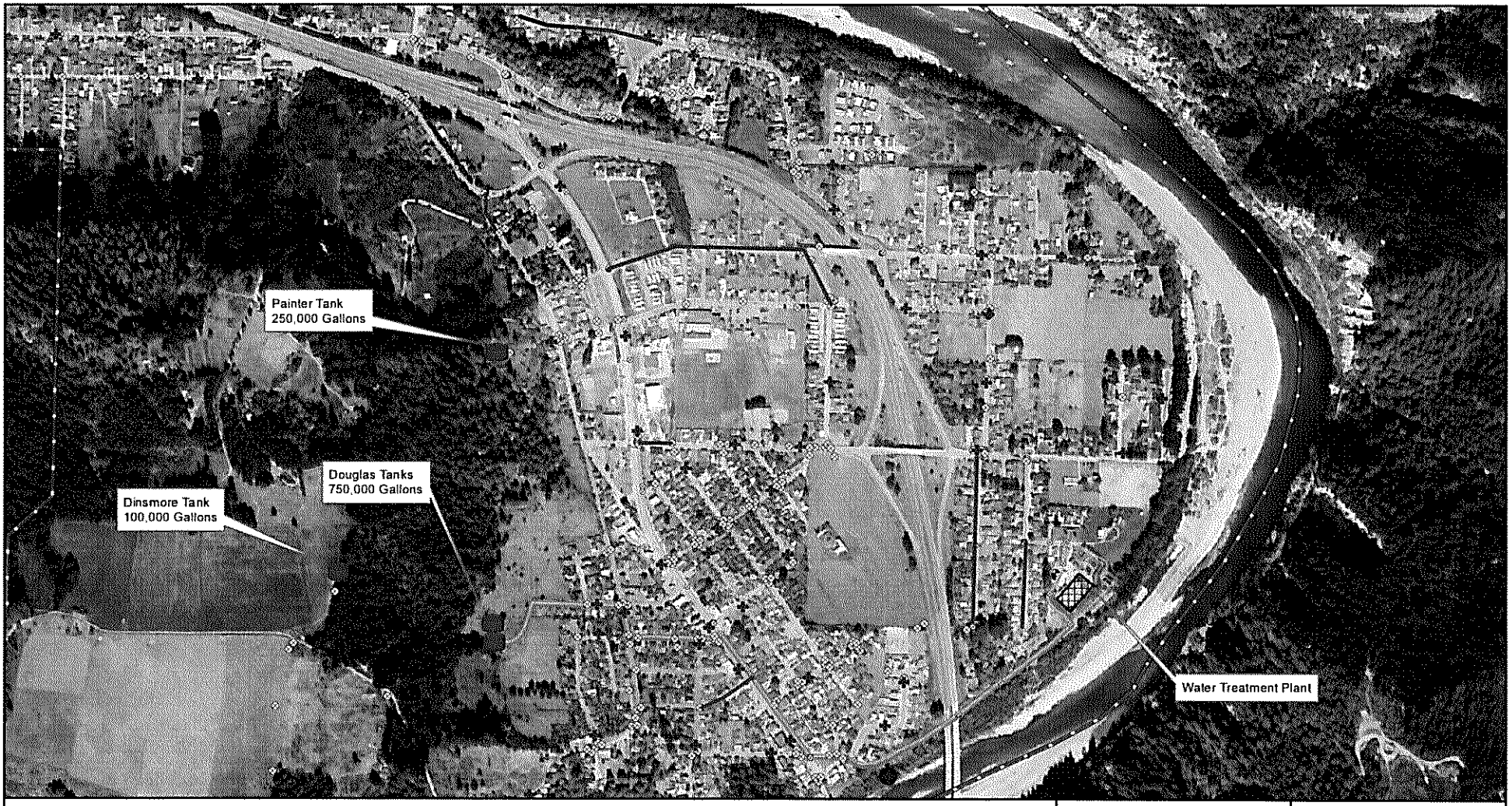
The City of Rio Dell has invested over $12 million in the water intake, treatment, storage, and distribution systems serving the City. The Asset Management Plan and Preliminary Capital Improvement Plan provide the City a framework for planning for the eventual replacement of water system infrastructure. The City should be collecting between $400,000 and $1,400,000 a year for replacement of water system components at the end of their useful life. The variation in amount reflects the potential to extend the useful life of some components and the potential for obtaining grants to offset City funds.

Appendices

Appendix A – Figures



Path: \\akasvr3\projects\2005 & Beyond\01061 City of Rio Dell\01061-07-010 CapitalImprovementPlan-WaterSystem\GIS 01061-07-010\WaterSystem_Map_2008.mxd - 4 11:14 PM



Raw Water Intake
Water Tank
Fire Hydrant
Valve

2006 Installed Pipeline
6" Diameter Pipeline
8" Diameter Pipeline
10" Diameter Pipeline

2006 Direct Fill Line
Water Service Area Boundary

0 300 600 1,200 ft

N

Sources: USDA: Aerial NAIP 2009 1 meter resolution. Humboldt County GIS: Parcels, Blueline Streams.

Cartography	Date	Project #
GG	12/8/2010	01061-01010

Figure 2
Existing Facilities, Service Area, and 2006 Pipeline

Rio Dell
Water System CIP

WINZLER & KELLY
www.w-and-k.com

Path: \\wkasvr3\projects\2005 & Beyond\01061 City of Rio Dell\01061-07-010 CapitalImprovementPlan-WaterSystem\GIS 01061-07-010\WaterSystem_Map_POST2006_INST
1:27:48 PM

Appendix B – Asset Management and Capital Improvement Plan Tables

Table B.1: Rio Dell Water Treatment Plant CIP Inventory - 2014

Teatment Plant

Asset - Treatment Plant	Description	Installation Date	Expected Useful Life	Remaining Useful Life	Condition	Service History	Adjusted Useful Life	Importance (Low, Medium, High, Critical)	Redundancy	Priority (1=highest) (5=lowest)	TOTAL 2014 COST
Raw Water Intake											
Infiltration Gallery Intake Piping	596 ft of piping	2006	60	52	new	annual		c	yes	1	$ 1,000,000
Raw Water Intake Pumps	(2) 15 HP + (1) 30 HP + (1) Myers	2006	15	7	new	annual		c	yes	1	$ 107,926
Wet Well	appx. 225 SF building	2006	50	42	new	none		c	none	1	$ 103,308
Raw Water Forcemain	10-inch (appx. 2251')	2006	50	42	new	none		c	none	1	$ 232,547
Backwash System	10-inch gravity fed from Douglas Tank (appx. 200')	2006	50	42	new	annual		h	none	2	$ 20,662
Auma Actuators	allows for bypass of flocculator; controlled from panel based on NTUs	2006	15	7	new	inspections quarterly		m	none	4	$ 7,461
Coagulation/Flocculation											
Temperature/pH Meter	Hach pHD differential pH	2006	15	7	new	quarterly		m	none	4	$ 264
Raw Water Turbidity Meter	Hach Surface Scatter 6 (Raw)	2001	15	2	good	quarterly		m	none	2	$ 5,432
Streaming Current Monitor	Chemtrac SCM2500XRD	2006	15	7	excellent	quarterly		m	none	2	$ 12,334
Chlorine Solution Tank	500 gal Tank	2006	50	42	excellent	quarterly		h	none	1	$ 2,296
Sodium Hypochlorite Injection	Solenoid Metering Pump (Premia 75 - 0.5gph)	2006	15	7	new	quarterly		h	none (only 1 unit)	1	$ 1,211
Chlorine Analyzer	Hach CL17	2006	15	7	excellent	quarterly		c	none (only 1 unit)	1	$ 3,420
Coagulant Solution Tank	350 gal Tanks (1 for summer; 1 for winter)	2001	60	47	excellent	quarterly		h	none (only 1 unit per season)	1	$ 2,009
ProPac 932 Polymer Injection	Liquid alum-polymer coagulatn blend from NTU Technologies, Inc.; solenoid metering pump (.5 gph max); Premia	2009	15	10	excellent	quarterly		h	none (only 1 unit per season)	1	$ 2,009
ProPac 9700 Polymer Injection	Liquid alum-polymer coagulatn blend from NTU Technologies, Inc.; solenoid metering pump (1 gph max); Premia	2006	15	7	excellent	quarterly		h	none (only 1 unit)	1	$ 2,870
Flash Mixer	Hayward Gordon Model HIM-20-10 (2hp)	2006	20	12	new, bad seal	biannual		c	None	1	$ 17,218
Flocculator/Clarifier	Roberts Filter RELIANT™ Floc/Settler Pretreatment Unit (designed for Q_{max} of 360 gpm; floc and SOR of 3.0 gpm/ft^2	2001	40	1	good, but severly undersized	annual		l	None	5	$ 350,000
Flocculator Vertical Paddle Wheel Motors	slow turn wood paddle wheels	2001	20	7	good	regular for motors		l	None	5	$ 517
Flocculator Elecric Actuating Sludge Wasting Valve	6-in Bray Series 70 (Open/Close)	2001	15	2		biannual		l		5	$ 1,722
Clarified Water Tanks	(2) 2,500 gal Tanks; came with RELIANT	2001	60	47	good	annual		l	2 units	5	$ 8,035
											$ -

Asset - Treatment Plant	Description	Installation Date	Expected Useful Life	Remaining Useful Life	Condition	Service History	Adjusted Useful Life	Importance (Low, Medium, High, Critical)	Redundancy	Priority (1=highest) (5=lowest)	TOTAL 2014 COST
Filtration											$ -
Transfer Pumps	pump to filters/throttles back w/filter influent valves; (2) split case horiz. Centrifugal pumps (Baldor Model 182JM motors & Goulds Model 3656 pump w/6.75" impeller) - 1725 RPM, 3HP	2001	20	7	good	2x/year		l	yes; 1 duty/1standby? Both on at same time	5	$ 9,183
Clarified Water Turbidity Meter	continuously measured at each filter outlet (HACH 1720D)	2001	15	2	good	quarterly		l	none (six total)	4	$ 2,984
Clarified Water Turbidity Meter	continuously measured at each filter outlet (HACH 1720E)	2006	15	7	good	quarterly		l	none (six total)	4	$ 2,984
Clarified Water Flowmeters	McCrometer MC-03 Propeller (4-inch) on Filters 3 and 4	2006	15	7	good	1x/year		c	none	1	$ 3,214
Clarified Water Flowmeters	McCrometer MC-03 Propeller (4-inch) on Filters 1 and 2	2009	15	10	excellent	1x/year		c	none	1	$ 3,214
Clarifier/Polishing Filters	Roberts Filter PACER II™ Dual Treatment Filters (2 units total installed in 2001); recoated in 2006	2001	50	37	good	1x/year		c	none; filter loading rates would be exceeded w/1 down	1	$ 803,509
Clarifier/Polishing Filters	Roberts Filter PACER II™ Dual Treatment Filters (2 units total in 2006)	2006	50	42	good	1x/year		c	none; filter loading rates would be exceeded w/1 down	1	$ 803,509
Filter Media	Cobble, white sand, red sand, anthracite	2006	10	2	good	every 10 years		c	none	1	$ 27,549
Chlorine Injection	Post Premia 75 Pumps (1 gph)	2006	15	7	good	quarterly		c	none	1	$ 1,748
Chlorine Analyzer	Hach CL17	2006	15	7	good	quarterly		h	none	1	$ 3,420
Clear Well	16,700 gal concrete clearwell	2006	100	92	good	1x/5 years		c	none	1	$ 28,697
Finish Water Pump #1	Vertical turbine pumps with VFD (Goulds 350 gpm pumps w/ 640 gpm combined capacity)	2014	15	15	good	2x/year		c	none; demand exceeds single pump capacity	1	$ 57,393
Finish Water Pump#2	Vertical turbine pumps with VFD (Goulds 350 gpm pumps w/ 640 gpm combined capacity)	2006	15	7	good	2x/year		c	none; demand exceeds single pump capacity	1	$ 57,393
Effluent Flow Meters	Siemens Sitrans 10" flowmeter	2006	15	7	good	1x/year		h	none	1	$ 7,461
Bray Valves	4" (4 four-inchers), replaced 2014 from Item Below	2014	10	10	good	excellent		h		1	$ 7,723
Bray Valves	4", 6", & 8" (8 per filter; 1 8-inch per filter; 1 6-inch filter; 2 four-inchers)	2001	10	2	good	excellent		h	2 new ones + parts on shelf	1	$ 9,624
Bray Valves	4", 6", & 8" (8 per filter; 1 8-inch per filter; 1 6-inch filter; 6 four-inchers)	2006	10	2	good	continuous		h	2 new ones + parts on shelf	1	$ 17,347
Level Controllers	LC-115 for Filters 3&4	2006	15	7	good	1x/year		h		1	$ 1,377
Level Controllers	LC-115 for Filters 1&2	2009	10	5	excellent	1x/year		h		1	$ 1,377
											$ -

Asset - Treatment Plant	Description	Installation Date	Expected Useful Life	Remaining Useful Life	Condition	Service History	Adjusted Useful Life	Importance (Low, Medium, High, Critical)	Redundancy	Priority (1=highest) (5=lowest)	TOTAL 2014 COST
Backwash System											$ -
Backwash Pumps	Goulds Model 3656 (350 gpm, 3500 RPM, 7 7/8 inch impeller)	2009	15	10	good	2x/year		m	yes	3	$ 5,739
Backwash Tank	11,300 gal	2001	60	47	good	every 2 years		l	none	3	$ 17,218
Bray Valve	1-4"	2014	10	10	good	every 2 years		m	none	1	$ 1,200
Air Scour Blowers	1 for each filter (Filters 1&2)	2001	15	2	good	1x/year		m	4 units; yes	2	$ 17,218
Air Scour Blowers	1 for each filter (Filters 3&4)	2008	15	7	good	1x/year		m	4 units; yes	2	$ 17,218
											$ -
SCADA System											$ -
Red Lion HMI/PLC	Roberts Filter Group	2009	20	20	Excellent	as needed		c	none	1	$ 22,957
Filter Controllers	for each filter	2005	20	12	good	as needed		c	none	1	$ 2,971
Aqua Sierra SCADA	server hardrives, power supplies, radio controls	2006	10	1	poor	as needed		m	none	2	$ 6,000
											$ -
Miscellaneous											$ -
Fencing & security gates	Security fencing around plant; needs replacement	2006	40	32	good	as needed		m		3	$ 34,436
Yard lighting (overhead)	Working on lights for years, only a few work, need to replace fixtures	2013	40	39	excellent	as needed		m		3	$ 11,479
Asphalt pavement	New asphalt	2013	40	39	excellent	as needed		l		4	$ 86,090
Grating, stairs, railings	Raling and stairs at plant in good condition; Filters 1 and 2 installed in 2001; Filters 3 and 4 installed in 2006	2006	50	42	good	as needed		l		3	$ 91,830
Standby Generator	Currently Don's Rental, have quoted from Rogers Machinery in the past but never purchased; don't have one yet	2015	15	16				m		3	$ 40,175
TOTAL											$ 3,012,958

Table B.2: Rio Dell Water Storage Tank CIP Inventory - 2014

Storage Tanks

Asset - Storage	Description	Installation Date	Expected Useful Life	Remaining Useful Life	Condition	Service History	Adjusted Useful Life	Importance (Low, Medium, High, Critical)	Redundancy	Priority (1=highest) (5=lowest)	TOTAL 2014 COST
Douglas Storage Tanks											
.25 MG Redwood Tank	48' Diameter/19.5' to overflow pipe	1978	40	4	Good	1x/5 years; serviced in		low	none	5	$ 300,000
0.5 MG Bolted Steel Tank	Epoxy coated bolted steel; 47.5' Diameter/37' to Overflow Weir Cone	2006	75	67	Excellent	1x/5 years; serviced in		critical	none	1	$ 286,967
Recirculation Pump Station	(2) 5 HP pumps (Not currently used)	2006	30	22	Excellent	1x/year		low	1 duty; 1 standby	5	$ 97,569
Wood Building	Houses chlorine, booster pumps, and recirculation pumps	2006	50	42	Excellent	as needed		medium	none	3	$ 13,774
Booster Pump Station to Dinsmore	(2) 15 HP pumps (appx. 62 gpm each existing); controlled by level at Dinsmore & suction/discharge piping	2006	20	12	Excellent	quarterly		critical	yes; 1 duty/1 standby	1	$ 74,612
Security Fencing	perimeter fencing	2006	60	52	Excellent	as needed		low	none	4	$ 13,774
Telemetry	combination for Douglas and Dinsmore	2001	20	7	Good	as needed		critical	none	1	$ 5,981
Flowmeter	Magmeter for 0.5 MG tank	2006	20	12	Excellent	1x/year		low	none	4	$ 4,591
Flowmeter	EMCO for (2) booster pumps	2006	20	12	Excellent	1x/year		critical	none	1	$ 4,591
Flowmeter	for recirculation pump station	2006	20	12	Excellent	1x/year		low	none	5	$ 4,591
Dinsmore Tank											
0.1 MG Bolted Steel Tank	fed by booster pump station at Douglas;	2006	75	67	New	1x/5 years; serviced in		critical	none	1	$ 200,877
Flowmeter	not hooked up; no power	2006	20	12	New	1x/year		low	none	5	$ 4,591
Solar Powered Telemetry	NOT INSTALLED YET	2015	15	16	Good	as needed		critical	none	1	$ 28,697
Painter Tank											
0.25 MG Welded Steel Tank	level transducer for indication only; floats with 0.5 MG Douglas Tank	1956	60	2	Fair	1x/5 years; serviced in		critical	none	1	$ 300,000
Solar Powered Telemetry	works when sunny (1 solar panel; converter; RTU)	2005	15	6	Good	as needed		critical	none	1	$ 28,697
TOTAL											**$ 1,369,314**

Table B.3: Rio Dell Water Treatment Plant CIP Inventory - 2014

Water Distribution System

Asset - Collection System	Expected Useful Life	Condition	Service History	Adjusted Life	Age	Remaining Useful Life	Importance	Redundancy	Priority (1=highest) (5=lowest)	TOTAL 2014 COST
2" or smaller water line										
Lineal Feet (LF) - 22533	60	Poor to Fair	LF needing replacement – 22,370'	50	1950	0	High	none	1	$ 1,677,750
4" water line										
Lineal Feet (LF) - 10313	60	Poor to Fair	LF needing replacement – 10,304'	50	1950	0	High	none	1	$ 772,800
6" water line										
Lineal Feet (LF) - 34947	60	Poor to Fair	LF needing replacement – 34,947'	50	1975	11	High	none	2	$ 2,795,760
Lineal Feet (LF) - 1389	100	New	New line installed in 2006	50	2006	42	High			$ 111,120
8" water line										
Lineal Feet (LF) - 9330	60	Poor to Fair	LF needing replacement – 9,330'	50	1980	16	High	none	3	$ 793,050
Lineal Feet (LF) - 5718	100	New		50	2006	42	High			$ 486,030
10" water line										
Lineal Feet (LF) - 20790	100	New	LF needing replacement – 0'	50	2006	42	High	none	4	$ 1,871,100
Fire Hydrant Assemblies										
Quantity - 23	40	Fair	Units needing replacement – 23	30	1980	0	High	none	3	$ 103,500
Quantity - 28	100	New	28 replaced in 2006	30	2006	22	High			$ 126,000
Gate Valves										
Quantity - 64	40	Fair	Units needing replacement – 64	30	1980	0	High	none	3	$ 96,000
Quantity - 157	100	New	93 replaced in 2006	30	2006	22	High			$ 235,500
TOTAL										**$ 9,068,510**

Table B.4: Capital Improvement Plan Budget for Useful Life Estimates, with 5-Year CIP Items Removed

COMPONENT	TOTAL REPLACEMENT COST ($)	ADJUSTED REMAINING USEFUL LIFE	YEAR TO BEGIN SAVING	YEAR OF REPLACEMENT	COMPOUND AMOUNT ($)	ANNUAL SINKING FUND ($)	2015	2016	2017	2018	2019	2020	2021	2022	$2,023	2024	2025
TREATMENT																	
Raw Water Intake																	
Infiltration Gallery Intake Piping	$275,000	52	2025	2067	$ 516,064	$7,740	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,740
Raw Water Intake Pumps	$94,023	7	2017	2022	$ 101,339	$19,427	$ -	$ -	$ 19,427	$ 19,427	$ 19,427	$ 19,427	$ 19,427	$ 19,427	$ -	$ -	$ -
Wet Well	$90,000	42	2025	2057	$ 145,387	$3,221	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,221
Raw Water Forcemain	$202,590	42	2025	2057	$ 327,266	$7,251	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,251
Backwash System	$18,000	42	2025	2057	$ 29,077	$644	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 644
Auma Actuators	$6,500	7	2017	2022	$ 7,006	$1,343	$ -	$ -	$ 1,343	$ 1,343	$ 1,343	$ 1,343	$ 1,343	$ 1,343	$ -	$ -	$ -
Coagulation/Flocculation																	
Temperature/pH Meter	$230	7	2017	2022	$ 248	$48	$ -	$ -	$ 48	$ 48	$ 48	$ 48	$ 48	$ 48	$ -	$ -	$ -
Raw Water Turbidity Meter	$4,732	2	2017	2020	$ 4,950	$1,615	$ -	$ -	$ 1,615	$ 1,615	$ 1,615	$ 1,615	$ -	$ -	$ -	$ -	$ -
Streaming Current Monitor	$10,745	7	2017	2022	$ 11,581	$2,220	$ -	$ -	$ 2,220	$ 2,220	$ 2,220	$ 2,220	$ 2,220	$ 2,220	$ -	$ -	$ -
Chlorine Solution Tank	$2,000	42	2025	2057	$ 3,231	$72	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 72
Sodium Hypochlorite Injection	$1,055	7	2017	2022	$ 1,137	$218	$ -	$ -	$ 218	$ 218	$ 218	$ 218	$ 218	$ 218	$ -	$ -	$ -
Chlorine Analyzer	$2,979	7	2017	2022	$ 3,211	$616	$ -	$ -	$ 616	$ 616	$ 616	$ 616	$ 616	$ 616	$ -	$ -	$ -
Coagulant Solution Tank	$1,750	47	2025	2062	$ 3,047	$55	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 55
ProPac 932 Polymer Injection	$1,750	10	2017	2025	$ 1,973	$229	$ -	$ -	$ 229	$ 229	$ 229	$ 229	$ 229	$ 229	$ 229	$ 229	$ 229
ProPac 9700 Polymer Injection	$2,500	7	2017	2022	$ 2,695	$517	$ -	$ -	$ 517	$ 517	$ 517	$ 517	$ 517	$ 517	$ -	$ -	$ -
Flash Mixer	$15,000	12	2025	2027	$ 15,456	$7,647	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,647
Flocculator Vertical Paddle Wheel Motors	$450	7	2017	2022	$ 485	$93	$ -	$ -	$ 93	$ 93	$ 93	$ 93	$ 93	$ 93	$ -	$ -	$ -
Flocculator Pneumatic Sludge Wasting Valve	$1,500	2	2017	2020	$ 1,569	$512	$ -	$ -	$ 512	$ 512	$ 512	$ 512	$ -	$ -	$ -	$ -	$ -
Clarified Water Tanks	$7,000	47	2025	2062	$ 12,188	$220	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 220
Filtration																	
Transfer Pumps	$8,000	7	2017	2022	$ 8,623	$1,653	$ -	$ -	$ 1,653	$ 1,653	$ 1,653	$ 1,653	$ 1,653	$ 1,653	$ -	$ -	$ -
Clarified Water Turbidity Meter	$2,600	2	2017	2020	$ 2,720	$888	$ -	$ -	$ 888	$ 888	$ 888	$ 888	$ -	$ -	$ -	$ -	$ -
Clarified Water Flowmeters	$2,800	7	2017	2022	$ 3,018	$579	$ -	$ -	$ 579	$ 579	$ 579	$ 579	$ 579	$ 579	$ -	$ -	$ -
Clarified Water Flowmeters	$2,800	10	2017	2025	$ 3,157	$366	$ -	$ -	$ 366	$ 366	$ 366	$ 366	$ 366	$ 366	$ 366	$ 366	$ 366
Clarifier/Polishing Filters	$700,000	37	2025	2052	$ 1,049,147	$29,191	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 29,191
Filter Media	$24,000	2	2017	2020	$ 25,104	$8,193	$ -	$ -	$ 8,193	$ 8,193	$ 8,193	$ 8,193	$ -	$ -	$ -	$ -	$ -
Chlorine Injection	$1,523	7	2017	2022	$ 1,642	$315	$ -	$ -	$ 315	$ 315	$ 315	$ 315	$ 315	$ 315	$ -	$ -	$ -
Chlorine Analyzer	$2,979	7	2017	2022	$ 3,211	$616	$ -	$ -	$ 616	$ 616	$ 616	$ 616	$ 616	$ 616	$ -	$ -	$ -
Clear Well	$25,000	92	2025	2107	$ 85,441	$395	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 395
Finish Water Pump #1	$50,000	15	2017	2030	$ 60,755	$4,108	$ -	$ -	$ 4,108	$ 4,108	$ 4,108	$ 4,108	$ 4,108	$ 4,108	$ 4,108	$ 4,108	$ 4,108
Finish Water Pumps #2	$50,000	7	2017	2022	$ 53,891	$10,331	$ -	$ -	$ 10,331	$ 10,331	$ 10,331	$ 10,331	$ 10,331	$ 10,331	$ -	$ -	$ -
Effluent Flow Meters	$6,500	7	2017	2022	$ 7,006	$1,343	$ -	$ -	$ 1,343	$ 1,343	$ 1,343	$ 1,343	$ 1,343	$ 1,343	$ -	$ -	$ -
Bray Valves	$8,384	2	2017	2020	$ 8,770	$2,862	$ -	$ -	$ 2,862	$ 2,862	$ 2,862	$ 2,862	$ -	$ -	$ -	$ -	$ -
Level Controllers	$1,200	7	2017	2022	$ 1,293	$248	$ -	$ -	$ 248	$ 248	$ 248	$ 248	$ 248	$ 248	$ -	$ -	$ -
Backwash System																	
Backwash Pumps	$5,000	10	2017	2025	$ 5,637	$654	$ -	$ -	$ 654	$ 654	$ 654	$ 654	$ 654	$ 654	$ 654	$ 654	$ 654
Backwash Tank	$15,000	47	2025	2062	$ 26,117	$472	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 472
Pneumatic Valves	$1,000	10	2017	2025	$ 1,127	$131	$ -	$ -	$ 131	$ 131	$ 131	$ 131	$ 131	$ 131	$ 131	$ 131	$ 131
Air Scour Blowers	$15,000	2	2017	2020	$ 15,690	$5,121	$ -	$ -	$ 5,121	$ 5,121	$ 5,121	$ 5,121	$ -	$ -	$ -	$ -	$ -
SCADA System																	
Red Lion HMI/PLC	$20,000	20	2025	2035	$ 23,234	$2,110	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,110
Filter Controllers	$2,588	12	2017	2027	$ 3,006	$273	$ -	$ -	$ 273	$ 273	$ 273	$ 273	$ 273	$ 273	$ 273	$ 273	$ 273
Aqua Sierra SCADA	$10,140	1	2017	2020	$ 10,606	$3,462	$ -	$ -	$ 3,462	$ 3,462	$ 3,462	$ 3,462	$ -	$ -	$ -	$ -	$ -
Miscellaneous																	
Fencing & security gates	$30,000	32	2017	2047	$ 47,031	$1,138	$ -	$ -	$ 1,138	$ 1,138	$ 1,138	$ 1,138	$ 1,138	$ 1,138	$ 1,138	$ 1,138	$ 1,138
Yard lighting (overhead)	$10,000	39	2017	2054	$ 17,411	$315	$ -	$ -	$ 315	$ 315	$ 315	$ 315	$ 315	$ 315	$ 315	$ 315	$ 315
Asphalt pavement	$75,000	39	2025	2054	$ 115,829	$2,932	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,932
Grating, stairs, railings	$80,000	42	2025	2057	$ 129,233	$2,863	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,863

STORAGE																	
Douglas Storage Tanks																	
.25 MG Redwood Tank	$300,000	4	2017	2020	$ 313,796	$102,412	$ -	$ -	$ 102,412	$ 102,412	$ 102,412	$ 102,412	$ -	$ -	$ -	$ -	$ -
0.5 MG Bolted Steel Tank	$286,967	67	2025	2082	$ 674,273	$6,199	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,199
Recirculation Pump Station	$97,569	22	2017	2037	$ 131,670	$5,355	$ -	$ -	$ 5,355	$ 5,355	$ 5,355	$ 5,355	$ 5,355	$ 5,355	$ 5,355	$ 5,355	$ 5,355
Wood Building	$13,774	42	2025	2057	$ 22,251	$493	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 493
Security Fencing	$13,774	52	2025	2067	$ 25,849	$388	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 388
Telemetry	$5,981	7	2017	2022	$ 6,446	$1,236	$ -	$ -	$ 1,236	$ 1,236	$ 1,236	$ 1,236	$ 1,236	$ 1,236	$ -	$ -	$ -
Flowmeter	$4,591	12	2017	2027	$ 5,334	$484	$ -	$ -	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484
Flowmeter	$4,591	12	2017	2027	$ 5,334	$484	$ -	$ -	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484
Flowmeter	$4,591	12	2017	2027	$ 5,334	$484	$ -	$ -	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484
Dinsmore Tank																	
0.1 MG Bolted Steel Tank	$200,877	67	2025	2082	$ 471,991	$4,339	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,339
Flowmeter	$4,591	12	2017	2027	$ 5,334	$484	$ -	$ -	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484	$ 484
Painter Tank																	
Solar Powered Telemetry	$28,697	6	2017	2021	$ 30,470	$7,379	$ -	$ -	$ 7,379	$ 7,379	$ 7,379	$ 7,379	$ 7,379	$ -	$ -	$ -	$ -
DISTRIBUTION																	
Piping																	
2" or smaller water line (Old) (75%)	$1,258,313	0	2017	2020	$ 1,316,179	$429,555	$ -	$ -	$ 429,555	$ 429,555	$ 429,555	$ 429,555	$ -	$ -	$ -	$ -	$ -
4" water line (Old) (75%)	$579,600	0	2017	2020	$ 606,254	$197,860	$ -	$ -	$ 197,860	$ 197,860	$ 197,860	$ 197,860	$ -	$ -	$ -	$ -	$ -
6" water line (Old)	$2,795,760	11	2017	2026	$ 3,199,480	$326,405	$ -	$ -	$ 326,405	$ 326,405	$ 326,405	$ 326,405	$ 326,405	$ 326,405	$ 326,405	$ 326,405	$ 326,405
6" water line (New)	$111,120	42	2025	2057	$ 179,504	$3,977	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,977
8" water line (Old)	$793,050	16	2017	2031	$ 978,192	$60,747	$ -	$ -	$ 60,747	$ 60,747	$ 60,747	$ 60,747	$ 60,747	$ 60,747	$ 60,747	$ 60,747	$ 60,747
8" water line (New)	$486,030	42	2025	2057	$ 785,137	$17,396	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 17,396
10" water line (New)	$1,871,100	42	2025	2057	$ 3,022,592	$66,972	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 66,972
Other																	
Fire Hydrant Assemblies (Fair)	$103,500	0	2017	2020	$ 108,260	$35,332	$ -	$ -	$ 35,332	$ 35,332	$ 35,332	$ 35,332	$ -	$ -	$ -	$ -	$ -
Fire Hydrant Assemblies (New)	$126,000	22	2025	2037	$ 150,826	$11,170	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,170
Gate Valves (Fair)	$96,000	0	2017	2020	$ 100,415	$32,772	$ -	$ -	$ 32,772	$ 32,772	$ 32,772	$ 32,772	$ -	$ -	$ -	$ -	$ -
Gate Valves (New)	$235,500	22	2025	2037	$ 281,901	$20,877	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 20,877
						TOTAL	$ -	$ -	$ 1,270,421	$ 1,270,421	$ 1,270,421	$ 1,270,421	$ 449,836	$ 442,457	$ 401,658	$ 401,658	$ 598,284
INFLATION	1.51%				connections	$1,150	$ -	$ -	$ 92	$ 92	$ 92	$ 92	$ 33	$ 32	$ 29	$ 29	$ 43
LAIF INTEREST RATE	2.12%				percent of collection	$1	$ -	$ -	$ 46	$ 46	$ 46	$ 46	$ 16	$ 16	$ 15	$ 15	$ 22